REMARKS

Claims 1-3, 6, and 8-17 are pending in the present application. Claims 4, 5, and 7 have been canceled. Claims 14-17 have been added to more particularly define what Applicant regards as his invention. Claims 1, 3, 8, and 9 are independent.

Examiner Interview

Applicant appreciates the courtesies extended by Examiner Mohammad Ali to their representative Michael R. Cammarata on 18 February 2004.

During the personal interview conducted on this date, Mr. Cammarata first explained the invention in detail and how the presently pending claims distinguish over the prior art of record. These arguments are largely repeated below.

Examiner Ali suggested that if the claims are amended to specify data base searching apparatus and method directed to finding the destination data based on a voice input, then the claims would appear to define over the applied art of record. Examiner Ali further stated that an update search will need to be conducted before a final determination of allowability can be made.

Following the interview, it was determined that limiting the independent claims to a voice input is not strictly necessary for overcoming the applied art. However, Applicant did accept the

Examiner's suggestion of adding "destination" to the claims such that the database searching method and apparatus are directed to determining a destination based on a natural language input. As further elaborated upon below, Applicant believes that these independent claim amendments clearly distinguish over the prior art of record. Therefore, Applicant earnestly solicits an early indication of allowability in view of the amendments and remarks contained herein.

Art Rejections

Claims 1, 2, 6 and 8-13 are rejected 35 U.S.C. § 102(e) as being anticipated by Paik (USP 6,076,088). Claims 3, 5, and 7 are rejected under 35 U.S.C. § 103 as being unpatentable over Paik in view of DeLorme (USP 5,948,040). These rejections, insofar as they pertain to the presently pending claims, are respectfully traversed.

Initially, Applicant notes that independent claim 5 and its dependent claim 7 have been cancelled. Therefore, the rejection of these claims is now clearly rendered moot.

Applicant further notes that the claims have been amended to further specify that the object data search apparatus and method are directed determining a destination object data. Thus, the claims have been amended mainly in line with the suggested

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amendment made during the personal interview. Further substantive arguments follow.

Paik discloses a method and system that extracts information from a large corpus of work. Specifically, Paik extracts Concept Relation Concept (CRC) triples from a large body of text to build a KR (Knowledge Representation) database. As discussed in column 9, lines 44-62, Paik processes a raw text document by first parsing the text to identify sentence and paragraph boundaries and then by utilizing an optional syntactic parser that tags each word with a part of speech. These syntactic tags are then utilized to construct the main data format or Knowledge Representation of the text. Mainly, these syntactic tags are utilized to construct the Concept Relation Concept triple. This is further shown in Figure 11, wherein the target article about Robert Dole is processed to extract numerous CRC triples for the subject "Bob Dole." The CRC data representation is a very specific representation utilized by Paik to advantage because it permits rigorous analysis of large amounts of text. The CRC triple data representation also permits a wide range of queries.

Significantly, when a query is entered into the Paik system, the query is also represented as a CRC triple. (See the paragraph bridging columns 9 and 10 where the query processing module 100' includes a CRC extractor 105 and a CRC-to-KR Translator 110'). Most

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significant is the Similarity Measurer 55, which is the unit responsible in Paik for matching queries to knowledge stored in the KR database 115. The Knowledge Representation of the query and the corpus is quite distinct from and does not disclose or suggest the categorical storage of information and categorical searching processing utilized by the invention.

More specifically, Paik fails to disclose or suggest a database that stores destination object data in association with a plurality of categorized attribute words categorized according to sentence elements of a natural language. The KR database utilized by Paik does not categorize according to sentence elements of a natural language. Quite to the contrary, Paik utilizes the CRC triple and KR representation thereof to both store the text information and compare query text to the stored text for a response to a query.

Paik also fails to disclose or suggest categorizing search words corresponding to sentence element categories of a natural language. More specifically and in terms of the amended claim 1 language, Paik fails to disclose or suggest a criteria retrieval unit that analyzes the search criteria and retrieves categorized search words respectively categorized in corresponding sentence element categories of the natural language. Although Paik does permit queries to entered in the form of a sentence, Paik fails to

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disclose or suggest categorization of search words as recited in the claims.

Paik further fails to disclose or suggest a <u>destination</u> object retrieval unit that categorically searches sentence categories of the database using each of the categorized search words, respectively associated with the sentence element categories as recited in amended claim 1. Clearly, the search performed by Paik determines the "degree of similarity between the query KR unit(s) and every KR unit in the KR database 115" (see column 22, lines 17-19). The KR units are quite distinct from and not even remotely suggestive of the categorical storage, search and retrieval utilized by the invention wherein the categories correspond to the sentence element of a natural language. Such sentence elements include, for example, agent-of-action, action, and object-of-action categories. While Paik may mention terms of speech, such as action and agent-of-action, these parts of speech are utilized in an entirely different manner by Paik to construct CRC triples and KR representations.

Paik also fails to enjoy many of the advantages achieved by the present invention. Namely, by categorizing the database into separate categories corresponding to the sentence elements of a natural language (e.g., agent-of-action, action, object-of-action, etc.), the search and retrieval steps are faster and more efficient. In other words, an input sentence is analyzed to extract

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search criteria. Each of the search criteria is categorized. During the search process, the categorized search data is matched against all of the attribute data within that same category. For example, search data that has been identified as an agent-of-action category is compared against all of the attribute data in the agent-of-action category of the database. Thus, only a small subset of the entire database needs to be searched which greatly reduces the search time and increases the efficiency of the search process.

In contrast, Paik's search process is much slower and less efficient. Indeed, the entire KR Database 115 would need to be searched for each KR unit of the query. Thus, an extremely large database such as one taken from an entire encyclopedia would require an exhaustive and lengthy search of all of the extracted KR units in order to match a search KR unit against that gigantic database.

Moreover, the application of the present invention is quite distinct from application of Paik. Namely, Paik is a robust information extraction system that extracts knowledge and information from a wide variety of text and is able to respond to a large range of queries. The present invention, in contrast, is primarily concerned with determining destination data based on a natural language query and the claims have been amended accordingly. The type of search being performed is for destination data. Furthermore, the queries made of such a database are to

determine the destination desired or inferred from a natural language query. Such queries are limited in form and scope and can be broken down into sentence element categories for efficient storage and retrieval therefrom.

Paik further fails to disclose or suggest the method of searching destination-of-travel object data as recited in claim 8. In particular, Paik fails to disclose or suggest storing destination-of-travel object data in association with a plurality of categorized attribute words, wherein the attribute words are categorized and stored according to sentence elements of a natural language.

Paik further fails to disclose or suggest searching sentence element categories of the database or retrieving destination-of-travel object data associated with the categorized attribute words that match a single search word or a plurality of search words in the same category as recited in amended claim 8. Because Paik fails to disclose or suggest any such sentence categories as argued above, Paik is incapable of disclosing or suggesting storing, searching, or retrieving utilizing of the sentence categories as further recited in amended claim 8.

Paik further fails to disclose or suggest a destination of travel object data search method as recited in amended claim 3. More specifically, Paik fails to disclose or suggest retrieving a plurality of search words by analyzing and categorizing the search

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criteria in accordance with a grammar of the natural language. Paik further fails to disclose or suggest conducting a category-by-category search relative to a plurality of sentence element categories associated with a plurality of destination-of-travel object data items. At best, Paik discloses a KR unit by KR unit search which is not even remotely suggestive of the category-by-category search utilized by the invention particularly where the categories are in accordance with a grammar of a natural language.

Applicant respectfully submits that the arguments above are sufficient to remove Paik as a valid and applicable reference against the pending claims. Furthermore, DeLorme fails to remedy any of the noted deficiencies in Paik.

DeLorme is merely a travel reservation and planning system that permits a user to make travel arrangements and plan travel activities. For example, a user may input preferred transportation mode, travel times/date frames, starting point, final destination, etc. to ultimately generate a "map ticket" containing various media that guides the tourist along the proposed travel route.

First of all, it is not understood how or why the Office Action proposes to combine DeLorme with Paik. The Office Action admits that Paik does not teach destination of travel data and utilizes the submission as a "basis" for combining with DeLorme.

Paik, however, already discloses analyzing location information in a document. As discussed in column 16, line 45 through column 17, line 59, Paik discloses a very specific set of special semantic relations that permits Paik's invention to analyze text having location or geographic information therein. These special semantic relations, in other words, permit Paik to form the CRC triples and knowledge representations that are key to his storage and retrieval functions. It is not understood how DeLorme's travel planner fits in any way into the Paik system. Applicant is left to conclude that the sole source of motivation for combining these references taken from Applicant's specification, which is an improper source of motivation.

Assuming, *in arguendo*, that the combination of Paik and DeLorme is somehow proper, Applicant asserts that this combination still fails to teach or suggest the invention, particularly as recited in the amended claims. DeLorme has no concept of categorization according to sentence element. DeLorme fails to disclose or suggest either storing or retrieving information utilizing sentence element categories. While DeLorme does disclose destination information and processing destination information as a part of a travel planning software, such a purpose in the implementation thereof are entirely distinct from, not combinable with, and certainly not disclosing or suggesting the invention as recited in the amended claims.

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For the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the art rejections.
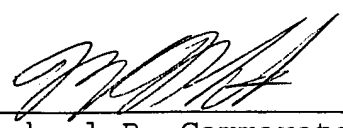
Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael R. Cammarata (Reg. No. 39,491) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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